

C. REMARKS

Applicants respectfully request reconsideration of the outstanding rejections and reexamination of the present application in light of the following amendments and remarks.

Status of the Claims

Claims 1-21 are currently pending. Claims 5, 12, 15, and 19 are currently amended.

Drawings

Applicants note that the First Office Action does not indicate whether the drawings filed with the present application are accepted. Applicants respectfully request that in any subsequent actions or a notice of allowance, that the Examiner indicate his acceptance of the formal drawings currently filed in the present application.

Rejection under 35 USC 101 Overcome

The Office Action rejects claims 15-21 under 35 USC 101 as allegedly being directed to non-statutory subject matter. [Office Action, p. 2] In particular, the Office Action states “the recording means is being defined as transmission media, which can include signals that pass through the air which is in a non statutory category. Paragraph 0025, line 12.” [Office Action, p. 2] Regardless of whether the rejection under 35 USC 101 is correct, Applicants amend the recording medium of claim 15 to limit the recording means to volatile or non-volatile media, which are tangible media and limited to a statutory category. Paragraph 0027 of the published specification distinguishes between volatile media, non-volatile media, and transmission media. Volatile media and non-volatile media include floppy disks and RAM, for example, which are tangible media. Transmission media may include light waves, as previously noted in the specification. By amending claim 15 to teach only tangible media of volatile and non-volatile media, Applicants clearly limit claim 15 to teaching a statutory category as required under 35 USC 101. In view of the amendment of claim 15 to no longer teach non-statutory subject matter and Applicants respectfully request withdrawal of the

rejection of claim 15 under 35 USC 101. In addition, Applicants respectfully assert that in view of the amendment, claims 16-21 are dependent claims directed to only statutory subject matter by virtue of the dependency upon claim 15, and claims 16-21 should also be allowed.

Claims 1, 2, 4, 5, 8, 9, 11, 12, 15, 16, 18, and 19 are not Obvious under McPherson and Alkhatib under 35 USC 103(a)

The Office Action rejects claims 1, 2, 4, 5, 8, 9, 11, 12, 15, 16, 18, and 19 under 35 USC 103(a) as being unpatentable over McPherson (US Patent 6,944,167) in view of Alkhatib et al. (US Publication 2004/0044778) (herein referred to as Alkhatib. [Office Action, p. 2]

As noted in the Office Action, under 35 USC §103(a) a patent may not be obtained though the invention is not identically disclosed as described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. In *Graham v. John Deere*, the Supreme Court clarified that “under 103, in considering the obviousness or nonobviousness of the subject matter, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved, in addition to evaluating evidence of secondary considerations.” *Graham*, 383 U.S. 1, 148 USPQ 459 (1966).

The Examiner bears the initial burden of supporting any prima facie conclusion of obviousness. MPEP 2142. To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the teachings. Second, there must be a reasonable expectation of success. Third, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both

be found in the prior art, and not based on Appellant's disclosure. *In re Vaeck*, 947, F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Applicants traverse the rejection of claims 1, 2, 4, 5, 8, 9, 11, 12, 15, 16, 18, and 19 in view of the rejections to the claims in the Office Action and in view of the amendments to the claims. Applicants respectfully assert that claims 1, 2, 4, 5, 8, 9, 11, 12, 15, 16, 18, and 19 are not obvious under McPherson in view of Alkhatib for the following reasons.

Claims 1, 8, and 15

Claim 1, which is an independent method claim representative in rejection of system claim 8 and program product claims 15, currently reads:

Claim 1 (Original): A method for accessing a data processing system behind a network address translation (NAT) enabled network, comprising:
 querying, from a client system located outside a NAT enabled network, a NAT device for an address of a NAT data processing system located behind said NAT enabled network;
 automatically routing said query through said NAT device to a DNS server, wherein said DNS server returns an address for said NAT data processing system and source routing for said NAT device; and
 sending packets, from said client system to said NAT data processing system at said address with source routing through said NAT device, such that said NAT data processing system behind said NAT enabled network is directly accessed by said client system from outside said NAT enabled network.

McPherson and Alkhatib do no teach or suggest all the elements

Applicants respectfully assert that claims 1, 8, and 15 are not obvious under 35 USC 103(a) because McPherson and Alkhatib, separately or when combined, do not teach or suggest all the elements in claims 1, 8, and 15.

First, Applicants respectfully assert that claims 1, 7, and 13 are not obvious under McPherson in view of Alkhatib because neither McPherson nor Alkhatib, separately or in combination, teaches each and every element of automatically routing said query through said NAT device to a DNS server, wherein said DNS server returns an address for said NAT data processing system and source routing for said NAT

device. The Office Action cites column 2 and line 31 and Figure 2C of McPherson as reading on the element of automatically routing said query through said NAT device to a DNS server, wherein said DNS server returns an address for said NAT data processing system for said NAT device and cites Fig 2C as showing “the Network Address Translator replying to a DNS server and the DNS server returns an address to the “requesting host”” and cites column 2, line 31. [Office Action, p. 3] Column 2, lines 31-37 of McPherson describe “A requesting host desiring access to a host within the private network queries a domain name server for the public network address of the private network host. Then, the domain name server queries a network address translator for the private network, and receives a reply indicating a dynamically allocated public network address for the specified private network host.” Fig 2C of McPherson clearly shows that a host sending a DNS query first to a DNS and the DNS sending the request for a public address to a NAT. Next, Fig 2C shows the NAT returning an address to the DNS and the DNS sends the address to the requesting host. Thus, McPherson clearly describes a system in which a requesting host sends a request to a DNS first and the DNS contacts the NAT.

Clearly, in view of the portions of McPherson cited by the Examiner and McPherson when considered as a whole, McPherson’s requesting host sending a request to a DNS that forwards the request to a NAT does not teach or suggest a requesting host first sending a request to a NAT and the NAT forwarding the request to a DNS. Claims 1, 8, and 15, however, when viewed as a whole, clearly teach a client system outside a NAT network querying a NAT device for an address and automatically routing that query through the NAT device to the DNS. This difference between McPherson’s description of a requesting host sending a request to a DNS and the DNS sending a request to a NAT and the claimed invention of a client system querying a NAT where the NAT automatically forwards the query to a DNS clearly indicates that McPherson does not teach or suggest each and every element of claims 1, 8, and 15.

The Office Action states “McPherson discloses all the limitations as disclosed above except for sending with source routing.” [Office Action, p. 3] Applicants respectfully note that McPherson does not disclose all the limitations of claims 1, 8, and

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15 except for “sending with source routing” because McPherson does not teach, and the Office Action does not point to any teaching of wherein said DNS server returns an address for said NAT data processing system and source routing for said NAT device. In particular, Applicants note McPherson describes the DNS requesting an address from the NAT and the NAT, responsive to the request from the DNS, dynamically assigning, to the private host, one of multiple public network addresses from a pool of available public addresses, for a period of time. *McPherson*, col. 6, lines 18-30. The public address described in McPherson is a single public IP address, assigned for a period of time, where the public IP address is different from the private IP address assigned to the same host. *McPherson*, col. 5, line 60- col. 6, line 3 and col. 6, lines 20-26. In contrast, claims 1, 8, and 15 teach that the DNS server returns both an address for the NAT data processing system and also returns source routing for the NAT device. Even if the Examiner were to consider the public network address as reading on the address for the NAT data processing system, McPherson does not teach or suggest the DNS returning the dynamically assigned public IP address and separately returning source routing for the NAT device itself.

Further, Applicants respectfully note that as to the element of “sending with source routing”, the Office Action cites paragraph 0150, line 12 of Alkhatib and as to “through a NAT device”, the Office Action cites paragraph 0150, lines 24-25 of Alkhatib and the phrase “data can flow between hosts A and C... through NAT...”). [Office Action, p. 4] Alkhatib describes an entity within a NAT network that establishes a persistent connection with an agent outside the NAT network through a specific port assigned by the NAT for the communication between the entity and the agent. *Alkhatib*, paragraphs 0044, 0048, Figure 2. A host outside the NAT network communicates with the agent and the agent sends the communication through the persistent connection through a port dedicated by the NAT for the connection. *Alkhatib*, paragraph 0059. Paragraph 0149 of Alkhatib, referred to in the Office Action, describes a situation where a persistent connection is first established with a particular destination IP address, but a paging solution is added where once host A establishes a persistent connection with a server/agent outside the NAT network, host B sends a page to the server requesting

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host A to establish a connection with host B, the server forwards the page to host A and then host A establishes a connection with host B, so that host B replaces the server. Paragraph 0150 of Alkhatib describes a situation in which a paging solution is applied where both hosts A and C are private entities behind NAT devices and the persistent connection established by host A with the server is for signaling purposes between the server and host A. In paragraph 0150 of Alkhatib, the NAT for host C sends a UDP packet to the NAT for host A, with an assigned port number and request to communicate, routed through the server and in response, the server pages host A with the IP address of the NAT for host C and the selected port number, over the persistent connection between the server and host A, to trigger host A to respond to host C at the port number and IP address. The NAT for host A selects a port number for the connection between host A and host C and from this point on, “data can flow between hosts A and C in both directions through NAT 12 and NAT 542 and the ports selected therein” as cited in the Office Action. *Alkhatib*, paragraph 0150, Figure 11. More specifically, paragraph 0150, lines 11-13 describe that in the server facilitating establishing a connection between the NAT devices, “In order for the port number selected by NAT 542 to become known to host A, this first UDP packet is source routed through the server.” When considered in the context of paragraph 0150 and *Alkhatib* as a whole, this statement indicates that the NAT for host C cannot just send a request for a connection directly to the NAT for host A, but host C can designate the destination by source routing through the server.

Applicants respectfully assert that the only explicit source routing specified in paragraph 0150 of *Alkhatib* is described with respect to source routing through a server, not through a NAT device. Thus, *Alkhatib* does not stand for the proposition on page 4 of the Office Action of “the general concept of providing source routing through a NAT device is well known in the art as illustrated by *Alkhatib* who discloses source routing through a NAT device in an accessing method, system, and product with means.” In addition, the mere mention of source routing through a server in *Alkhatib* does not teach or suggest the claimed element of wherein said DNS server returns source routing for said NAT device.

Therefore, in view of the foregoing, because McPherson and Alkhatib, separately or in combination, fails to teach or suggest at least one element of claims 1, 8, and 15, a prima facie case of obviousness is not established with regard to claims 1, 8, and 15 and the claims should be allowed.

There is no suggestion or motivation for modifying McPherson by Alkhatib

Applicants respectfully assert that claims 1, 8, and 15 are not obvious under 35 USC 103(a) because McPherson and Alkhatib, separately or when combined, do not teach or suggest all the elements in claims 1, 8, and 15. In addition to the requirement of some suggestion or motivation, either in the references themselves or in the knowledge generally available to one skilled in the art to modify the reference or to combine the reference teachings, the prior art must also suggest the desirability of the claimed invention. In re Fulton, 391, F.3d 1195, 73 USPQ2d 1141 (Fed. Cir. 2004), MPEP 2143.01.

As previously noted the Office Action cites McPherson as teaching the elements of claims 1, 8, and 15 other than sending source routing. [Office Action, p. 3] Applicants previously noted that McPherson also does not teach or suggest wherein said DNS server returns source routing for said NAT device. The Office Action states that “it would have been obvious for one of ordinary skill in the art at the time of the invention to modify McPherson to include the use of source routing through NAT in his advantageous method as taught by Alkhatib in order to forward “the communication to the entity inside the private” network as stated by Alkhatib, in his abstract, last two lines.” [Office Action, p. 4]

First, Applicants respectfully assert that there is no motivation or suggestion for modifying McPherson by Alkhatib to teach sending packets, from said client system to said NAT data processing system at said address with source routing through said NAT device within McPherson. In particular, Applicants note that McPherson describes a system for returning a public IP address for a private network host to a requesting host so that the requesting host can then use the public IP address for communicating with the private network host. *McPherson*, abstract. There is no indication in McPherson

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why McPherson would be modified to return both a public IP address assigned to a private network host, for communicating directly with the private network host, and the source routing for the NAT device, since the public IP address is assigned from the NAT device to the private network host from a pool of public addresses available for assignment by the NAT device and since the public IP address allows the requesting host to communicate with the private network host. *McPherson*, col. 6, lines 20-30.

Second, Applicants respectfully assert that there is no motivation or suggestion for modifying McPherson by Alkhatib to teach sending packets, from said client system to said NAT data processing system at said address with source routing through said NAT device within Alkhatib. The Office Action cites Alkhatib's description of an agent forwarding "the communication to the entity inside the private" network as the suggestion for combining McPherson with Alkhatib. [Office Action, p. 4] Alkhatib describes setting up an agent outside the private network with which an entity within the private network maintains a persistent connection through a dedicated port assignment by the NAT, such that other hosts outside the private network may send communications to entity through the agent. *Alkhatib*, paragraphs 0044 and 0048. Paragraphs 0148-0150 of Alkhatib, also cited in the Office Action as reading on sending packets with source routing describes an agent acting as a facilitator for requests from a host to establish a persistent connection through an assigned NAT port with the entity, and not just to communicate through the agent with the entity. Thus, Alkhatib describes either a host sending a communication to a destination address of an agent for an entity or a host establishing a persistent connection with an entity through the IP address of the NAT and a port assigned by the NAT for the persistent connection. The abstract of Alkhatib refers to the scenario in which an agent forwards a communication from a host through the dedicated NAT port connection to an entity. No portion of Alkhatib, however, motivates or suggests modification of or combination with McPherson's system of sending a communication from a requesting host to a private network host through a public IP address to also include sending the communication through an agent established in a persistent connection through the dedicated NAT portion connection to an entity, as is required in Alkhatib.

Third, McPherson by Alkhatib do not suggest the desirability of the sending packets, from said client system to said NAT data processing system at said address with source routing through said NAT device. There is nothing in McPherson and Alkhatib as a whole to suggest the desirability of modifying a public IP address based connection, as described with reference to McPherson, to include both a public IP address for the private network host and source routing for the NAT device that assigned the public IP address. While McPherson and Alkhatib both broadly offer solutions to a host system outside a NAT network initiating communication with a system within the NAT network, McPherson provides a solution of a NAT assigning a public IP address, temporarily, to the system within the NAT network, so that outside systems only receive the public IP address of the system and Alkhatib provides a solution of establishing a persistent connection of a dedicated port between an agent and a system within the NAT network through which other systems may communication within the system within the NAT network through the agent, such that the agent only receives the IP address of the NAT device and a port number. McPherson, abstract; *Alkhatib*, paragraphs 0044, 0048. Neither of these references when considered as a whole suggest the desirability to teach the claimed method, system, or program product of responding to a client system query to a NAT device for an address of a private system through a DNS sending a network address for the private system and source routing for the NAT or sending packets to the network address for the private system with source routing through the NAT device.

Therefore, because McPherson and Alkhatib do not separately or as a whole suggest the desirability of making the combination in claims 1, 8, and 15, McPherson and Alkhatib do not suggest the obviousness of the combination, the Office Action does not establish a prima facie case of obviousness, and the claims should be allowed.

Claims 2, 4, 5, 9, 11, 12, 16, 18, and 19

Applicants respectfully assert that because claims 2, 4, 5, 9, 11, 12, 16, 18, and 19 are dependent upon claims 1, 8, and 15, which are allowable as not obvious under

McPherson and Alkhatib, claims 2, 4, 5, 9, 11, 12, 16, 18, and 19 are also allowable by virtue of the dependency.

In addition, with respect to claims 4, 11, and 18, claim 4 which is rejected on the same grounds as claims 11 and 18, reads:

Claim 4 (Original): The method according to claim 1 for accessing a data processing system behind a NAT enabled network wherein automatically routing said query through said NAT device to a DNS server, further comprises:
automatically routing said query through a pre-selected port of said NAT device for handling DNS queries.

Applicants respectfully assert that a prima facie case of obviousness is not established as to claims 4, 11, and 18 because McPherson and Alkhatib, separately or in combination, fail to teach each and every element of automatically routing said query through a pre-selected port of said NAT device for handling DNS queries. The Office Action cites McPherson as disclosing the limitations of claims 4, 11, and 18 other than “using a pre-selected NAT port”. [Office Action, p. 5] The Office Action cites Alkhatib as using a pre-selected NAT port in paragraph 0050, last two lines and line 5, next page, same paragraph and cites this portion of Alkhatib as describing “a look up table containing the NAT portion number is used for connections.” [Office Action, p. 5] The last two lines of paragraph 0050 state

“Agent 30 maintains a lookup table for all of its connection with entities inside private networks” and lines 1-5 of the paragraph on page 4 state “Each connection has an entry in the table. Each entry stores the domain name of the entity in the private network, the public IP address used for the entity (e.g. the address provided by the NAT device), the port for the NAT device...”

Applicants respectfully note that when paragraph 0050 of Alkhatib is viewed within Alkhatib as a whole, the paragraph describes that one agent may maintain persistent connections with more than one entity in a private network and that the agent stores the information for the persistent connection, including the port number for the NAT device for directing communications within the persistent connection, in a lookup table.

Applicants respectfully assert that merely because a lookup table may include a NAT port number for a persistent connection between an agent and an entity, a NAT

port number assigned to a persistent connection does not teach any use of a NAT port number, as suggested in the Office Action. In addition, Applicants note that Alkhatib describes an agent, external to a NAT network, with a lookup table including a NAT port number and therefore clearly Alkhatib not only does not teach “the general concept of using a pre-selected port number of a NAT device” as stated in the Office Action. Thus, regardless of whether McPherson describes routing a query through a port of the NAT device for handling DNS queries, Alkhatib does not teach a pre-selected port of the NAT for handling a query. Thus, the combination of McPherson and Alkhatib also does not teach automatically routing said query through a pre-selected port of said NAT device for handling DNS queries. Because McPherson and Alkhatib, separately or in combination, fail to teach or suggest every element of claims 4, 11, and 18, the Office Action does not establish a prima facie case of obviousness and the claims should be allowed.

In addition, with respect to claims 5, 12, and 19, claim 5 which is rejected on the same grounds as claims 12 and 19, reads:

Claim 5 (Currently Amended): The method according to claim 1 for accessing a data processing system behind a NAT enabled network wherein automatically routing said query through said NAT device to a DNS server, further comprises:

automatically routing said query to said DNS server that identifies and returns to said client system stores-at-least-one private internet protocol address for said NAT data processing system comprising at least one private system located behind said NAT enabled network and said source routing for said NAT device.

Applicants respectfully assert that while McPherson, Figure 2A and 2B describes a table with a private address for a private system and Alkhatib, paragraphs 0044, 0048, and 0150 describes a NAT device setting a NAT port for a persistent connection between a private system and a system outside a NAT enabled network, neither McPherson nor Alkhatib, nor the combination of these references teaches or suggests a DNS server that locates and transmits to the requesting client system, a private IP address for the private system and the source routing for the NAT device. In particular,

with regard to the previous rejection of claim 5, 12, and 19 claim 7 of McPherson which is cited in the rejection reads: “The communication network of claim 1 wherein the network address translator is configured to: determine if a public address has already been assigned to the private network address before dynamically assigning the public address to the private network host; and transmit the response indicating the public address already assigned to the private network host.” Neither claim 7 of McPherson nor any other portion of McPherson, however, teaches or suggests a DNS server that identifies and transmits to the client system a private IP address for the private system. Therefore, regardless of whether the previous rejection of claims 5, 12, and 19 was correct, Applicants have amended claims 5, 12, and 19 to clarify that McPherson and Alkhatib do not teach or suggest each and every element of the claims because the references separately or in combination do not teach a DNS server that identifies and returns to a requesting client system both a private IP address for a private system located behind a NAT enabled network and the source routing for the NAT device. Applicants submit that no new matter is added through the amendments, which are supported throughout the specification, and for example, in paragraphs 0036, 0042, 0047, and 0051.

Claims 3, 10, and 17 are not Obvious under McPherson and Alkhatib in view of Dalgic and Unix under 35 USC 103(a)

The Office Action rejects claims 3, 10, and 17 under 35 USC 103(a) as being unpatentable over McPherson in view Alkhatib and further in view of Dalgic et al (US patent 6,925,076) and the Unix manual (<http://web.archive.org/web/20020102131755/http://www.scit.wlv.ac.uk/cgi-bin/mansec?4+resolv.conf>). [Office Action, p. 6] Applicants respectfully assert that because claims 3, 10, and 17 are dependent upon claims 1, 8, and 15, which are allowable as not obvious under McPherson and Alkhatib, claims 3, 10, and 17 are also allowable by virtue of the dependency.

Claims 6, 13, and 20 are not Obvious under McPherson and Alkhatib in view of Dalgic under 35 USC 103(a)

The Office Action rejects claims 6, 13, and 20 under 35 USC 103(a) as being unpatentable over McPherson in view Alkhatib and further in view of Dalgic et al (US patent 6,925,076). [Office Action, p. 8] Applicants respectfully assert that because claims 6, 13, and 20 are dependent upon claims 1, 8, and 15, which are allowable as not obvious under McPherson and Alkhatib, claims 6, 13, and 20 are also allowable by virtue of the dependency.

Claims 7, 14, and 21 are not Obvious under McPherson and Alkhatib II under 35 USC 103(a)

The Office Action rejects claims 7, 14, and 21 under 35 USC 103(a) as being unpatentable over McPherson in view Alkhatib (US Pub 2004/0249974) (referred to as Alkhatib II). [Office Action, p. 10] Applicants respectfully assert that because claims 7, 14, and 21 are dependent upon claims 1, 8, and 15, which are allowable as not obvious under McPherson and Alkhatib, claims 7, 14, and 21 are also allowable by virtue of the dependency.

Conclusion

In view of the foregoing, withdrawal of the rejections and the allowance of the current pending claims is respectfully requested. If the Examiner feels that the pending claims could be allowed with minor changes, the Examiner is invited to telephone the undersigned to discuss an Examiner's Amendment.

No extension of time is believed to be necessary. If, however, an extension of time is required, the undersigned hereby authorizes the Commissioner to charge any fees for this extension to IBM Corporation Deposit Account No. 09-0447.

Respectfully submitted,

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